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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/622,304 | 07/17/2003 | Peter Wayte | 041A.0001.U1(US) | 7284 |
| 29683 | 7590 | 01/24/2005 | EXAMINER | |
| HARRINGTON & SMITH, LLP 4 RESEARCH DRIVE SHELTON, CT 06484-6212 | | | AHMED, SHAMIM | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1765 | |

DATE MAILED: 01/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,304

Applicant(s)

WAYTE, PETER

Examiner

Shamim Ahmed

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gondel et al (5,209,829) in view of Applicant's admitted prior art.

Gondel et al disclose an acid etching process for titanium alloy components, especially turbine blades and discs, wherein the etching is performed by contacting/immersing the blade including the blade tip in the etching bath comprising sodium fluoride, sulfuric acid and water (col.1, lines 5-12 and col.2, lines 35-50).

Gondel et al also disclose that it is important to perform non-destructive inspection for the titanium alloy component after engine operation for various defects including contaminations, from which they may suffer (col.1, lines 15-28).

Gondel et al remain silent that the inspection comprises visually inspecting the etched component for dark areas indicating deposited aluminum-based material.

However, Applicants admitted prior art discusses that during the engine operation the turbine blades may contact and rub into casings or adjacent hardware coated with AlSi and tends to deposit of aluminum on the blade (see lines 4-14 at page 2 of the specification).

Therefore, it would have been obvious to form or deposit aluminum-based contaminants on the blades during the engine operation as taught by the Applicant's admitted prior art.

As to claims 19-21, modified Gondel et al do not explicitly teach that the etching can be done by swab etching at least a portion of the titanium alloy.

However, it would have been obvious to do so for reducing the processing cost by reducing the amount of etching solution used.

3. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Broughton et al (3,850,712) in view of Applicant's admitted prior art and further in view of Hinson (5,705,082).

Broughton et al disclose a process of etching titanium or titanium alloy part in which the part is immersed in a mixture of acid solution comprising nitric acid and hydrofluoric acid and water (col.19-27).

Broughton et al also disclose that it is necessary that the titanium alloy component is visually inspected after the etching process for defects such as cracks and other flaws, wherein the etching and inspection are performed after the component had been run on a gas turbine engine (col.1, lines 6-8 and col.2, lines 9-13 and lines 41-43).

Broughton et al remain silent that the inspection comprises visually inspecting the etched component for dark areas indicating deposited aluminum-based material.

However, Applicants admitted prior art discusses that during the engine operation the turbine blades may contact and rub into casings or adjacent hardware coated with AlSi and tends to deposit of aluminum on the blade (see lines 4-14 at page 2 of the specification).

Therefore, it would have been obvious to form or deposit aluminum-based contaminants on the blades during the engine operation as taught by the Applicant's admitted prior art.

Modified Broughton et al do not explicitly teach that the etching can be done by swab etching at least a portion of the titanium alloy.

However, it would have been obvious to do so for reducing the processing cost by reducing the amount of etching solution used.

Modified Broughton et al fail to teach the etching solution comprises sulfuric acid instead of nitric acid.

However, Hinson teaches that nitric acid or sulfuric acid can be used to efficiently etching titanium-based metal (col.3, lines 2-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to combine Hinson's teaching into the modified Broughton et al's etching process because both the nitric and sulfuric acid are functionally equivalent during the efficient etching of titanium-based component as taught by Hinson.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shamim Ahmed
Examiner
Art Unit 1765

SA
January 17, 2005